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ABSTRACT

This article reviews some of the literature on educational approaches for drug-exposed children. Common effects of prenatal and perinatal drug use on the female user, the developing fetus, and the neonate are reviewed. It is noted that female drug users have an increased incidence of medical complications during pregnancy; that the specific effects of drug use during pregnancy depend on several factors, including the type of drug, timing of drug use, and the extent and duration of use; and that outcomes associated with drug use include physical birth defects, mental retardation and developmental delays, and growth delays. The issue of Fetal Alcohol Syndrome is examined. Educational concerns related to alcohol- and other drug-related birth defects are presented. Indicators for early intervention services are outlined in the areas of motor and neurological development; affective and behavioral development; social/attachment development; problems solving, attention and concentration; language development; and play. Recommendations for classroom application of intervention strategies for optimal learning in at-risk children are described. These include lists of 6 protective factors, 9 facilitative factors, and 22 teaching strategies for optimal learning. The article concludes with recommendations for services to be offered to at-risk children. (NB)

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An Endangered Generation: Impact of Perinatal Drug Use

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ABSTRACT

Educators across the country are becoming concerned about the potential impact of drug use by pregnant women on the lives of their children. This article reviews some of the literature on educational approaches for drug-exposed children. Common effects of perinatal drug use on the female user, the developing fetus and the neonate are reviewed. Educational concerns related to alcohol and other drug-related birth defects are presented. Indicators for early intervention services are outlined. Recommendations for classroom application of intervention strategies for optimal learning in at-risk children are described. The article concludes with recommendations for services to be offered to at-risk children.

INTRODUCTION

As many as one in six women of peak childbearing ages 18-34 drink enough alcohol, either chronically or on occasion, to present fetal development risks (Centers for Disease Control, 1983). Fetal alcohol syndrome (FAS) is now the leading known cause of mental retardation ranking ahead of Down's syndrome and spina bifida, with an estimated incidence of 2.2 per 1,000 live births (Abel & Sokol, 1986; Niebyl, 1988). The National Association of Perinatal Addiction Research and Education (NAPARE) estimates 375,000 affected infants are born annually in the United States with some drug-related birth defects. Various studies indicate 11 percent (range from 10-15%) of pregnant women use drugs during pregnancy (Jones & Lopez, 1989; Niebyl, 1988). Cross-addiction is a growing problem; 40-80 percent of all female addicts are dependent on more than one drug (General Service Office of Alcoholics Anonymous, 1983; Roberts, 1989).

Educators across the country are expressing concern about the potential impact of drug use by pregnant women on the lives of their children. This is reflected in increased calls from educators and school support personnel to programs such as the Fetal Alcohol and Drug Prevention Program at the Bowman Gray School of Medicine of Wake Forest University.

OVERVIEW OF PERINATAL DRUG EFFECTS

It is helpful to begin by considering some of the common effects of perinatal drug exposure. The diversity of outcomes includes complications for the female drug user, adverse fetal effects, and obstetric and neonatal complications.

Female drug users have an increased incidence of medical complications during pregnancy. Among the common diagnoses are: anemia, high blood pressure, lung diseases, tetanus, and heart attack. Infection and inflammation of various body sites may include skin abscesses, urinary tract infections and sexually transmitted diseases. Gonorrhea, syphilis and HIV (human immunodeficiency virus) infection are particular concerns. Hepatitis is diagnosed in 15-18 percent of intravenous drug users. The poor nutritional status of many drug users has negative effects on pregnancy. Death from overdose is also a potential outcome (Martin et al., 1988).

The specific effects of drug use during pregnancy depend on a number of factors. The type of drug, timing of drug use, extent and duration of use are examples of factors that determine the total effect of drug exposure. Among the outcomes associated with such drug use are: physical birth defects, mental retardation and developmental delays, and growth delays. In the fetal and newborn periods, behavioral and psychologic disturbances may result (Martin et al., 1988).

Obstetric complications are often identified by the physicians caring for pregnant drug users. Risk factors include: low birthweight, preterm labor, infections, central nervous system abnormalities and other congenital defects, and fetal distress related to preterm labor, complicated labor or drug withdrawal (Martin et al., 1988).

In three to seven percent of offspring exposed to drugs, death occurs in the first 28 days of life. Signs of drug withdrawal may be observed within the first 72 hours of life or may be delayed from ten to 32 days after birth. The risk of sudden infant death syndrome (SIDS) may be greater in drug-exposed children. Behavioral disorders may be observed, particularly with feeding, sleeping, and response to the environment (Martin et al., 1988).

A number of factors interact to determine the outcome for drug-exposed children. These contributing elements include: extent of the perinatal insult, presence of additional risk factors, and subsequent environmental factors. The outcomes will be diverse. Some children will show few symptoms of exposure; others may have neurological or physical symptoms throughout the life span.

One of the growing concerns of educators is the cocaine-exposed child. If the research regarding these children is examined, variable outcomes are evident. The most common findings describe an irritable infant who has difficulty switching from sleep to an alert state. The child may exhibit poor task orientation and gross motor delays. Problems with structure of play and relationships may be present. Thus far, studies do not indicate intellectual impairments in these children. The learning ability of cocaine-exposed children seems to be normal when given structured settings. Some of the outcomes reported in these children, such as low birthweight, can likely be attenuated by improvements in the environment.

A FEW WORDS ABOUT FETAL ALCOHOL SYNDROME

The diagnostic features of fetal alcohol syndrome (FAS) comprise a pattern of physical and central nervous system (CNS) effects. It is the cluster of characteristics that permits diagnosis. The pattern of effects includes growth deficiency (both prenatal and postnatal), facial anomalies (recognizable, though often not grossly malformed), mental retardation and other CNS abnormalities. A wide variety of physical malformations can accompany these primary features of FAS (Giunta & Streissguth, 1988; Streissguth & LaDue, 1987). In some cases, a diagnosis of fetal alcohol effects or alcohol-related birth defects is given when the individual has only partial features of FAS.

The CNS effects, including neurologic abnormality, developmental delay, and intellectual impairment can make these children difficult to manage. The average intellectual function is in the mildly retarded range, with a great deal of variation. Developmental disabilities are permanent and as adults, affected individuals often need special care and programming (Giunta & Streissguth, 1988).

Specific CNS manifestations are often related to the age of child. In the infant, feeding difficulties, erratic sleep patterns and slow mastery of milestones are often evident. The preschooler is often very talkative, hyperactive and fearless with poor coordination and motor control (Streissguth, LaDue, & Randels, 1988).

Particular concerns regarding the school-age child with alcohol-related birth defects include certain behavioral and developmental characteristics. These children are often hyperactive, overly intrusive and talkative, and demand close physical contact. Impulsive behavior and emotional lability are common. Inappropriate sexual activity is often reported, particularly after the age of 12 (Streissguth, LaDue, & Randels, 1988).

Fine motor problems, attention and memory deficits often complicate learning. Two critical school periods are transitions from elementary to middle school and again from middle to high school. Increased truancy, school refusals, and dropouts occur along with increased behavioral disruption in the classroom during these years. The more functional child may exhibit poor peer relations and social isolation. School achievement usually peaks in middle school at grades 6-8 and ages 12-15, with reading and spelling superior to arithmetic skills (Streissguth, Barr, Sampson, Parrish-Johnson, Kirchner, & Martin, 1986; Streissguth, LaDue, & Randels, 1988).

More is known about the prognosis for alcohol-related birth defects than for those resulting from other drug exposures. A follow-up of adolescents and adults with alcohol-related birth defects revealed some interesting findings. Shortness of stature and microcephaly were the most differential growth parameters. Prominent physical features included dental and skeletal anomalies (particularly fingers, scoliosis and short neck). The facial features coarsen with the nose and chin becoming more prominent. Childhood pictures (between ages 2 to 9) and early growth data may aid diagnosis in older patients (Streissguth, Clarren, & Jones, 1985; Streissguth & LaDue, 1987).

The severity of the FAS diagnosis is inversely related to IQ. Adolescent and adult patients perform better on more concrete tasks. Memory and attention deficits may further

compromise the adaptive functioning of patients with alcohol-related birth defects (Streissguth, LaDue, & Randels, 1988).

INDICATORS FOR EARLY INTERVENTION (Program for Children Exposed Prenatally to Drugs (PED), 1990)

It has been suggested by some educational researchers that early intervention services might benefit the drug-exposed child. The Los Angeles Program for Children Exposed Prenatally to Drugs (PED) has identified a number of behaviors that identify children at risk of problems with school. These behaviors can be considered indicators of a need for early intervention services.

1. Motor and neurological development
   a. Tremulous, tremors when reaching, increased startle
   b. Poor quality of visual following
   c. Poor visual attention to people/objects
   d. Blanking out, staring, bizarre eye movement
   e. Poor fine motor dexterity
   f. Gross motor clumsiness

2. Affective and behavioral development
   a. Labile emotions, rapid shift from apathy to aggressiveness
   b. Irritable, hyper-sensitive, explosive and impulsive
   c. Depressed affect, decreased laughter
   d. Difficulty in comforting self and being comforted
   e. Marked difficulty with transitions and changes
   f. Increased testing of limits
      (1) Insists on doing tasks on own terms
      (2) Persistent refusal to comply with simple commands
   g. Inability to self-regulate or modulate behavior

3. Social/attachment development
   a. Decreased use of eye contact to initiate social interaction
   b. Decreased use of gestures to initiate social interaction
   c. Decreased or absent stranger/separation anxiety
   d. Indiscriminate attachment to new people
   e. Aggressiveness with peers
   f. Decreased compliance to verbal direction
   g. Decreased response to praise
   h. Decreased use of adults for solace, comfort and object attainment
   i. Decreased use of adults to gain recognition for accomplishments

4. Problem solving, attention and concentration
   a. Poor attention on task
   b. Increased distractibility
   c. Inability to accommodate in problem solving
      (1) Impulsive responses
      (2) Persistent use of ineffective strategies
      (3) Decreased visual scanning of all components
      (4) Decreased use of trial and error
      (5) Delay in recognizing task completion

5. Language development
   a. Fewer spontaneous vocalizations from early infancy
   b. Delay in word acquisition
   c. Decreased use of acquired words/gestures to communicate wants/needs
   d. Prolonged use of "in-class" errors in object identification
   e. Prolonged infantile articulation
   f. Difficulty in "word-finding"

6. Play
   a. Decreased spontaneous play; increased aimless wandering
   b. Does not apply acquired adaptive skills in stacking, marking and container play
   c. Cannot organize own play; perplexed and confused; cannot select materials and focus adaptively
   d. Delays, discontinuity and disorder in representational play
   e. Easily overstimulated
   f. Difficulty in peer relationships in unsupervised play

EDUCATIONAL IMPLICATIONS (Barth, 1990)

Since the effects of perinatal drug exposure are so variable, educational planning should be carried out on a case-by-case basis. The general guideline is to educate the drug-exposed child as an individual with particular strengths and vulnerabilities. A unique concern is the need to counter any misconceptions these individuals may have regarding drug use. With mounting evidence of a biologic factor in chemical dependence, these perinatally exposed children may be at significant risk of drug-related problems if they begin to use psychoactive substances.

Special education is not routinely necessary though the child may benefit from intensive assistance prior to school entry. Small pre-school programs of 15-20 children may help these children. Particular attention to social and communication skills is essential. These children often need specific

assistance with problem solving and staying focused on assigned tasks.

A partnership with caretakers is vital to maintain communication regarding the child's needs. Consistency is needed for these children at home and in the educational setting.

Transition plans are essential for providing structure to the drug-exposed child in the classroom. The educator should announce that an activity is coming to an end and slowly ease into the next activity. Any special events that deviate from the normal schedule must be discussed in advance.

Close observation of the child's play provides information about the child's development. Play is the means by which children begin to integrate cognitive, language and social skills in relationships. Abnormal play behaviors indicate a need for intervention.

Social services will often play a leading role in managing care for these children. Up to 80% of drug-exposed children may be in foster care. Caretakers, whether biological parents or not, must be informed of changes in the child's progress. Social service workers may strengthen both the communication process and delivery of services.

PROTECTIVE AND FACILITATIVE FACTORS (PED Team, 1990)

Researchers in Los Angeles have found that effective intervention strategies for drug-exposed children must counteract prenatal risk factors and stressful life events. One set of protective factors can be implemented within the classroom environment. These protective factors include: respect, routines and rituals, observation and assessments, flexible room environment, transition time plans, and low adult to child ratio.

1. Respect for the child's space; avoid unrealistic demands; teacher should be predictable
2. Routines and rituals - predictable setting strengthens child's self-control and mastery over environment
3. Observation and assessments of child at play, in transitions, in self-help; provides information on how child experiences stress, relieves stress, copes, reacts to change
4. Flexible room environment - remove items to reduce stimuli or add to enrich activity
5. Transition time plans - permits teaching around preparation and coping skills
6. Adult:child ratio - sufficient to promote attachment, predictability, nurturing and ongoing assistance

Along with protective factors, educators must utilize a facilitative approach to help the child acquire better coping

skills. The facilitative factors include: attachment, feelings, mutual discussion, classroom rules, role model, peer sensitivity, decision-making, home, and program.

1. Attachment - accept child regardless of history of negative experiences
2. Feelings - Acknowledge what the child seems to want before dealing with misbehavior; this acknowledges the child's feelings which promotes self-esteem; respond to each incident as distinct event
3. Mutual discussion - verbal expression allows child to integrate experiences, helping to distinguish between fantasy and reality
4. Classroom rules - stated rules should be limited to permit exploration and active engagement with the environment
5. Role model - child is more likely to model the behavior of a trusted teacher
6. Peer sensitivity - child becomes sensitive to needs and feelings of others only by repeatedly having own needs met
7. Decision-making - child must be allowed to make decisions
8. Home - strengthen positive interaction between child and family by allowing for close working relationship between home and school
9. Program - coordination of services (transdisciplinary) is critical to successful intervention

TEACHING STRATEGIES FOR OPTIMAL LEARNING (PED Team, 1990)

The PED Team has developed teaching strategies for at-risk children that focus on the specific behavioral characteristics of these children. Strategies have been suggested for several aspects of development: learning, play, social/emotional, communication, motor/spatial, and home partnership. The strategies for optimal learning, one aspect of development, are outlined below as an example of the approach recommended by these researchers.

1. Provide support and emotional reassurance
2. Reduce classroom interruptions
3. Limit number of objects in room
4. Establish classroom routines with minimum number of transitions
5. Model alternative strategies
6. Direct child to watch another child who is using successful strategy
7. Consider developmental level of child
8. Recognize preschoolers may need to sit in adult's lap
9. Recognize preschoolers may need to sit next to an adult

10. Use physical, concrete and verbal cues to direct or redirect child in task
11. Consistently praise child's attempt and accomplishments
12. Ask child to verbalize steps of task
13. Talk child through task if child cannot verbalize steps
14. Provide opportunities for child to take turns with peers and adults
15. Model taking turns
16. Provide attention/time to child behaving appropriately
17. Protect child from over-stimulation of intrusive persons or noise; protect from under-stimulation of bland experiences
18. Provide schedule of play and rest activities
19. Alert child routinely 1-2 minutes prior to end of activity
20. Talk about next activity before beginning it
21. Allow adequate time for transition activity
22. Guide child through transition and into next activity

The components incorporated into the PED strategies represent the numerous dimensions along which development occurs and deal with the specific needs of children at risk because of drug exposures. The references should be reviewed for more in-depth exploration of the recommendations for aspects of development in addition to learning.

RECOMMENDATIONS (Rogan, 1985; Hagberg, 1983)

Early identification is essential for effective intervention with drug-affected children. In some cases, this will facilitate proper medical treatment. In all cases, identification will allow adequate preparation of caretakers.

Appropriate referrals are critical for these children. All referrals should be based upon careful and complete assessment of individual needs. Services should be geared to those identified needs. Follow-up should include review of these referrals to make certain changing needs are addressed.

Family intervention should be the goal of management. Parental drug use should be eliminated. Mothers need help in dealing with guilt to enhance the quality of bonding with the child. Parenting skills should be strengthened and the mother assisted in making realistic expectations for the child. The home environment should be monitored for evidence of neglect or abuse.

Complete physical examinations and developmental assessments are required periodically. As specific needs are identified, interventions should be arranged. The types of services that

might prove beneficial to drug-affected children include: physical and speech therapy, vision care, management for chronic medical problems, psychotherapy, educational and social planning.

With intervention directed at the unique needs of the drug-affected child, the prognosis is much more favorable. Careful planning and delivery of services will improve their chance at a healthy, productive life.

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